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RESEARCH MEMORANDUM

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EVALUATION OF GUST AND DRAFT VELOCITIES FROM FLIGHTS OF

P-61C AIRPLANES WITHIN THUNDERSTORMS MAY 13, 1947

TO MAY 29, 1947 AT CLINTON COUNTY

ARMY AIR FIELD, OHIO

By

H. B. Tolefson

Langley Memorial Aeronautical Laboratory
Langley Field, Va.



NATIONAL ADVISORY COMMITTEE
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NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

RESEARCH MEMORANDUM

EVALUATION OF GUST AND DRAFT VELOCITIES FROM FLIGHTS OF
P-61C AIRPLANES WITHIN THUNDERSTORMS MAY 13, 1947TO MAY 29, 1947 AT CLINTON COUNTY
ARMY AIR FIELD, OHIO

By H. B. Tolefson

The gust and draft velocities evaluated from records of NACA instruments installed in P-61C airplanes participating in thunderstorm flights at Clinton County Army Air Field, Ohio, from May 13 to May 29, 1947 are presented herein. In accordance with informal agreement, these data are of the type evaluated for the thunderstorm flights at Orlando, Florida in 1946 (see reference 1) with the major exception that the gust data are presented for consecutive time intervals of each traverse instead of consecutive space intervals. Similarly, the location of draft velocities encountered during the traverses is defined in terms of time rather than distance from the start of the traverse.

Langley Memorial Aeronautical Laboratory
National Advisory Committee for Aeronautics
Langley Field, Va.

Harold B. Tolefson
Aeronautical Engineer

Approved:

Richard V. Rhode

Chief of Aircraft Loads Division

fk

REFERENCE

1. Tolefson, H. B.: Evaluation of Gust and Draft Velocities from Flights of P-61C Airplanes within Thunderstorms. II - July 9, 1946 to July 11, 1946 at Orlando, Florida. NACA RM No. L6I16a, 1946.

TABLE I.- SUMMARY OF GUST MEASUREMENTS FROM FLIGHTS
OF P-61C AIRPLANES WITHIN THUNDERSTORMS

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)		No. of gusts		
May 13, 1947 - Flight 1								
Airplane 348 - Traverse 1 Length of traverse 134.2 sec, 45,126 ft								
0 - 10	25,500	3.6	-7.1	---	-6.6	---		
10 - 20		3.6	-5.5	7.2	---	138		
^a 20 - 30		4.2	-5.9	---	-11.4	---		
30 - 40	26,000	3.6	-7.4	---	-19.2	340		
40 - 50		6.8	-3.2	---	---	7		
50 - 60		3.2	-6.8	---	---	6		
60 - 70		9.4	-9.1	---	-9.7	221		
70 - 80	25,500	10.7	-9.4	---	---	8		
^b 80 - 90	26,000	7.1	-3.2	---	---	4		
90 - 100		2.9	-5.5	6.6	103	4		
100 - 110		---	-3.2	---	---	2		
110 - 120		---	-3.2	---	-6.4	251		
120 - 140		---	---	---	---	0		
Airplane 348 - Traverse 2 Length of traverse 101.5 sec, 35,090 ft								
^a 0 - 10	26,000	8.1	-4.8	12.1	---	190		
10 - 20		4.5	-4.8	---	---	4		
20 - 30	25,500	6.4	-7.4	---	---	4		
30 - 40		9.0	---	18.2	---	2		
40 - 50		8.4	---	---	---	3		
50 - 60		3.2	-10.0	4.6	115	2		
60 - 70	26,000	6.8	-3.5	---	---	6		
70 - 80		3.2	-3.5	---	---	2		
80 - 90		7.1	-5.5	---	---	5		
^b 90 - 100		5.2	-4.5	---	---	5		
100 - 110		---	---	---	---	0		

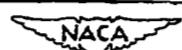
^aCloud entry.^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)	No. of gusts
May 13, 1947 - Flight 1					
Airplane 348 - Traverse 3 Length of traverse 820.3 sec, 284,510 ft					
0 - 260	26,000	---	---	---	0
260 - 270		3.2	---	---	2
270 - 280		---	---	---	0
280 - 290		5.1	-5.4	---	5
290 - 300		3.2	-6.1	---	2
300 - 310		5.4	-8.9	---	6
310 - 320		5.1	-3.2	---	2
320 - 330	25,500	4.5	-2.6	7.7	4
330 - 340		3.5	-2.6	---	3
340 - 350		3.5	-3.2	6.9	4
350 - 360		3.5	-5.1	---	2
360 - 370		---	---	---	0
370 - 380		---	-4.8	---	1
380 - 390		3.2	-3.2	---	2
390 - 400		3.2	-2.6	---	5
400 - 410		3.2	-8.0	---	6
410 - 420		3.2	---	7.0	1
420 - 440		---	---	---	0
440 - 450		3.2	-5.1	---	3
450 - 460		---	-4.5	---	2
460 - 470		---	---	---	0
470 - 480		---	-2.6	---	1
480 - 490		---	---	---	0
490 - 500		---	-2.6	---	1
500 - 590	26,000	---	---	---	0
590 - 600		4.8	---	---	1
600 - 620		---	---	---	0
620 - 630		---	-2.9	---	1
630 - 680		---	---	---	0
680 - 690		---	-2.6	---	1
690 - 700		3.2	---	6.5	297
700 - 710		---	-3.2	---	1
710 - 720		---	-3.5	---	2
720 - 730		5.8	-5.1	---	1
730 - 740		4.5	-1.3	---	5
740 - 750		---	-5.8	---	2
		---	---	---	3

*Cloud entry; questionable.

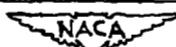


TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)		No. of gusts		
May 13, 1947 - Flight 1								
Airplane 348 - Traverse 3 Length of traverse 820.3 sec, 284,510 ft								
750 - 760	26,000	6.1	-2.6	---	---	3		
760 - 770		6.1	-4.8	13.4	-11.8	249		
770 - 780		3.2	-8.0	---	---	4		
780 - 790		6.1	-2.2	---	-11.7	288		
790 - 800		3.2	-2.9	---	---	4		
800 - 810		5.8	-3.5	---	---	3		
810 - 820		8.0	-5.1	---	---	4		
Airplane 354 - Traverse 1 Length of traverse 1550.6 sec, 460,187 ft								
d_0 - 40	21,000	---	---	---	---	0		
40 - 50		---	-3.9	---	-6.0	63		
50 - 60		---	---	---	---	0		
60 - 70		3.2	-3.6	---	---	3		
70 - 80		---	-3.6	---	---	1		
80 - 90		3.2	-3.6	---	-6.7	167		
90 - 100		3.2	-3.6	---	-7.1	83		
100 - 110		12.6	-2.9	7.3	-7.9	41		
110 - 120		8.7	---	16.1	-7.9	129		
120 - 130		3.9	-3.6	---	147	245		
130 - 290		---	---	---	---	5		
290 - 300		2.3	---	---	---	0		
300 - 310		8.1	-4.9	---	---	1		
310 - 320		6.2	-9.4	16.6	---	3		
320 - 330		---	---	---	299	4		
330 - 340		---	-3.6	---	---	0		
340 - 350		13.0	-16.5	27.6	-13.2	5		
350 - 360		9.7	-6.8	---	450	88		
360 - 370		6.8	-6.8	12.9	---	6		
370 - 380		7.4	-4.2	11.0	36	8		
380 - 390		3.9	-3.6	---	31	9		
390 - 400		4.5	-3.6	13.1	-6.7	254		
400 - 410		3.2	-3.6	---	34	4		
410 - 420		4.5	---	8.3	---	4		
420 - 450		---	---	---	223	1		
450 - 460		3.6	---	---	---	0		
				---	---	2		

^dCloud entry and exit not indicated on records.

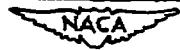


TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity U_e _{max} (fps)	Maximum true gust velocity U_t _{max} (fps)	Gust gradient distance (ft)	No. of gusts
May 13, 1947 - Flight 1					
Airplane 354 - Traverse 1 Length of traverse 1550.6 sec, 460,187 ft					
460 - 470	20,500	6.8	5.2	77	1
470 - 480		3.9	3.5	145	1
480 - 490		---	-2.9	6.7	2
490 - 500		3.9	-3.6	12.1	4
500 - 510		6.8	-3.6	252	4
510 - 520		---	-2.9	282	2
520 - 530		1.9	-3.6	163	2
530 - 540		3.2	---	161	2
540 - 550		5.8	-3.6	206	3
550 - 560		2.6	-2.9	---	3
560 - 570		---	---	---	0
570 - 580		2.9	---	---	1
580 - 590		---	---	---	0
590 - 600		10.0	---	219	1
600 - 610		7.4	-3.9	78	2
610 - 620		---	---	---	0
620 - 630		10.0	-2.9	57	3
630 - 640		5.8	-2.9	196	3
640 - 650		1.9	---	207	1
650 - 660		3.2	---	218	1
660 - 670		---	-3.6	12.9	1
670 - 680		---	---	287	1
680 - 690		2.6	---	---	1
690 - 820	21,000	---	3.0	263	0
820 - 830		---	-3.5	---	1
830 - 840		7.7	-3.9	---	7
840 - 850		6.7	-6.1	---	8
850 - 860		7.1	-8.0	---	5
860 - 870		10.3	---	142	3
870 - 880		10.6	-8.7	---	6
880 - 890		7.1	-7.1	-17.2	5
890 - 900		7.4	-9.6	33	8
900 - 910		---	-6.1	---	2
910 - 920		15.1	-14.1	---	5
920 - 930	20,500	7.4	-10.6	-22.4	6
930 - 970		---	---	260	0

TABLE I-- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity U_e _{max} (fps)	Maximum true gust velocity U_t _{max} (fps)	Gust gradient distance (ft)	No. of gusts
May 13, 1947 - Flight 1					
Airplane 354 - Traverse 1 Length of traverse 1550.6 sec, 460,187 ft					
970 - 980	20,500	---	-3.5	---	1
980 - 990		---	---	---	0
990 - 1000		---	-2.9	---	1
1000 - 1010		---	---	---	0
1010 - 1020		---	-2.2	---	1
1020 - 1030	21,000	3.5	-2.2	7.2	4
1030 - 1060		---	---	---	0
1060 - 1070		1.9	---	---	1
1070 - 1080	20,500	2.6	---	6.4	1
1080 - 1270		---	---	197	1
1270 - 1280		7.7	---	---	0
1280 - 1360		---	---	---	1
1360 - 1370		2.6	---	---	0
1370 - 1390		---	---	---	1
1390 - 1400		2.6	-3.9	---	0
1400 - 1490		---	---	---	3
1490 - 1500		6.1	---	11.3	0
1500 - 1510		5.1	---	-7.4	5
1510 - 1520		7.7	---	207	1
1520 - 1530		5.5	-4.2	---	2
1530 - 1540		3.9	---	7.6	2
1540 - 1560		---	---	86	2
Airplane 360 - Traverse 1 Length of traverse 394.4 sec, 116,270 ft					
0 - 150	16,000	---	---	---	0
150 - 160		1.9	-2.9	---	2
160 - 170		---	-1.9	---	1
170 - 180		1.3	-2.6	---	3
180 - 210		---	---	---	0
210 - 220		---	-1.9	---	1
220 - 230		3.6	-2.6	5.6	4
230 - 240		1.9	-4.8	---	9
240 - 250		3.9	-6.8	---	7
250 - 260		1.6	-4.5	---	2

TABLE I. - SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)		No. of gusts		
May 13, 1947 - Flight 1								
Airplane 360 - Traverse 1 Length of traverse 394.4 sec, 116,270 ft								
260 - 270	16,000	5.5	-4.2	7.8	---	127		
^a 270 - 280		6.5	-6.8	---	---	---		
280 - 290		7.1	-8.4	---	-5.3	77		
290 - 300		3.9	-5.5	---	---	---		
300 - 310	15,500	9.1	-10.7	---	---	---		
310 - 320		10.4	-2.3	---	---	---		
320 - 330	16,000	3.9	-4.5	---	---	6		
330 - 340		6.8	-4.2	---	---	9		
340 - 350		2.6	-5.5	---	---	5		
350 - 360		5.5	-7.8	2.4	-12.3	71 190		
360 - 370		5.8	-6.8	20.5	-4.2	297 174		
^b 370 - 380		3.6	---	---	---	2		
380 - 400		---	---	---	---	0		
Airplane 360 - Traverse 2 Length of traverse 184.6 sec, 56,036 ft								
0 - 10	16,000	1.3	-1.9	---	---	---		
10 - 20		4.2	-9.0	---	---	9		
^a 20 - 30		16.4	-4.8	29.7	---	8		
30 - 40		3.5	-4.5	---	---	3		
40 - 50		1.9	-8.7	---	-7.8	242		
50 - 60	16,500	10.6	-9.7	---	---	10		
60 - 70		2.9	-3.5	---	---	2		
70 - 80		3.9	-2.2	---	---	4		
80 - 90		8.7	-11.0	---	-12.7	54		
90 - 100		4.2	-4.8	---	---	9		
100 - 110		6.8	-3.5	---	---	13		
110 - 120		8.4	-3.9	---	---	5		
120 - 130		3.2	-3.5	---	---	9		
130 - 140		3.2	-5.5	---	-5.6	3		
140 - 150		1.9	---	---	-4.6	2		
150 - 160		2.6	-5.2	---	---	4		
^b 160 - 170		3.2	-2.2	---	---	9		
170 - 180		4.2	---	---	---	4		
180 - 190		---	---	---	---	1		
		---	---	---	---	0		

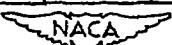
^aCloud entry.^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)	No. of Gusts
May 13, 1947 - Flight 1					
Airplane 353 - Traverse 1 Length of traverse 403.6 sec, 113,540 ft					
0 - 10	11,000	2.1	-----	-----	1
10 - 20		-----	-1.6	7.2	187
20 - 30		2.9	-3.2	-----	5
30 - 40		-----	-1.6	-----	7
40 - 50		-----	-----	-----	2
50 - 60		-----	-----	-----	0
60 - 70		-----	-----	-----	0
70 - 80		2.3	-----	-----	1
80 - 90		2.2	-----	-----	1
90 - 100		3.0	-4.2	-----	3
100 - 110		3.0	-1.6	-----	2
110 - 120		-----	-3.2	-2.6	135
120 - 130		-----	-----	-----	2
130 - 140		-----	-1.6	-----	0
140 - 150		-----	-3.2	-5.2	135
150 - 160		4.4	-4.5	-----	6
160 - 170		-----	-3.2	-----	3
^a 170 - 180		2.9	-5.8	-----	7
180 - 190		-----	-3.8	-----	4
190 - 200	10,500	2.9	-4.5	-----	8
200 - 210		6.4	-2.9	-----	4
210 - 220	11,000	4.2	-2.4	-----	2
220 - 230		-----	-4.1	6.4	6
230 - 240		2.1	-1.6	-----	2
240 - 250		2.9	-----	7.7	4
250 - 260		-----	-3.2	-----	3
260 - 270		3.5	-5.8	8.8	75
270 - 280		7.4	-5.8	-10.0	262
280 - 290	10,500	5.1	-4.5	-11.1	3
290 - 300	11,000	7.1	-1.6	-7.3	7
300 - 310		8.0	-10.9	-----	10
310 - 320		6.7	-7.4	-11.9	5
320 - 330		-----	-4.8	-9.0	3
^b 330 - 340		4.4	-9.0	-----	9
340 - 350	10,500	8.3	-9.3	-----	14
^a 350 - 360		11.2	-4.5	-----	7
^b 360 - 370	11,000	5.1	-7.4	-----	6
370 - 380		4.6	-2.6	8.1	5
380 - 410		-----	-----	71	0

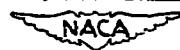
^aCloud entry.^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{\max}}$ (fps)	Maximum true gust velocity $U_{t_{\max}}$ (fps)	Gust gradient distance (ft)	No. of gusts
May 13, 1947 - Flight 1					
Airplane 353 - Traverse 2 Length of traverse 138.8 sec, 38,771 ft					
^a 0 - 10	11,000	12.1	-6.4	---	6
10 - 20		7.3	-4.1	---	8
20 - 30		9.6	-8.9	---	7
30 - 40	11,500	4.8	-6.1	11.1	4
40 - 50	11,000	5.1	-4.1	7.4	7
50 - 60		5.1	---	6.1	1
60 - 70		6.7	-3.5	15.5	7
70 - 80		4.1	-1.6	---	4
80 - 90		3.5	-4.1	6.6	5
^b 90 - 100	11,500	4.7	-3.5	---	2
100 - 110		9.3	---	---	3
110 - 120	11,000	---	-5.4	7.2	1
120 - 130		8.0	---	5.2	4
130 - 140	10,500	4.0	-1.5	---	3
May 27, 1947 - Flight 2					
Airplane 351 - Traverse 1 Length of traverse 1360.8 sec, 475,733 ft					
0 - 210	21,000	---	---	---	0
210 - 220		7.0	-11.7	---	3
220 - 230		11.1	-11.1	26.9	7
230 - 240		---	---	---	0
240 - 250		---	-8.2	-10.9	1
250 - 260		7.6	-20.6	8.8	7
260 - 270		16.2	-19.7	26.3	14
270 - 280		22.2	-15.5	19.9	11
280 - 290		13.6	-7.0	---	13
290 - 300	21,500	10.5	-16.2	26.1	13
300 - 310	22,000	15.5	-15.9	---	7
310 - 320		15.9	-11.4	15.0	12
320 - 330	21,500	19.7	-23.1	39.6	8
330 - 340	22,000	12.0	-11.4	---	12
340 - 350		9.5	-9.2	4.3	8
350 - 360	22,500	8.6	-4.8	10.7	3

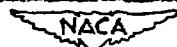
^aCloud entry.^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{\max}}$ (fps)	Maximum true gust velocity $U_{t_{\max}}$ (fps)	Gust gradient distance (ft)		No. of gusts		
May 27, 1947 - Flight 2								
Airplane 351 - Traverse 1 Length of traverse 1360.8 sec, 475,733 ft								
360 - 370	22,500	6.7	-18.4	---	-18.2	---		
370 - 380		9.2	-6.3	12.4	-25.6	99 121		
380 - 390		12.0	-6.7	9.5	-9.4	97 61		
390 - 400		---	-10.5	---	---	---		
400 - 410		8.6	-10.5	19.2	---	143		
410 - 420		11.7	-8.6	16.8	---	26		
420 - 430		5.4	-4.8	15.3	---	30		
430 - 440		3.5	-7.6	18.9	-16.3	272 193		
^a 440 - 450		---	---	7.6	---	56		
450 - 520		---	---	---	---	---		
520 - 530		---	-5.1	---	-11.3	354		
530 - 640		---	---	---	---	---		
640 - 650	20,500	4.1	---	---	---	---		
650 - 660		---	-3.8	---	-4.5	36		
660 - 680	21,000	---	---	---	---	---		
680 - 690		---	-5.4	---	---	---		
690 - 770		---	---	---	---	---		
770 - 780		---	-4.7	---	---	---		
780 - 860		---	---	---	---	---		
860 - 870		6.6	---	10.8	---	110		
870 - 880		5.0	-6.0	8.6	---	59		
880 - 890		5.0	-9.9	---	-18.7	279		
890 - 900	20,500	5.0	-7.2	---	-9.9	362		
900 - 910		6.9	-3.5	12.0	-6.4	102 39		
910 - 920	21,000	3.5	-5.7	5.2	-10.8	206 75		
920 - 930		2.8	-3.8	8.7	---	348		
930 - 940		9.1	-11.3	6.7	---	121		
940 - 950		5.0	-3.8	12.5	-11.8	129 211		
950 - 960		7.2	-6.6	13.5	---	195		
960 - 970		---	-7.2	---	-10.1	41		
^a 970 - 980		11.3	-7.6	25.7	---	285		
980 - 990		8.8	-6.6	---	-16.2	31		
990 - 1000		6.9	-6.9	---	---	---		
1000 - 1010		14.8	-12.0	14.2	-9.3	133 153		
1010 - 1020		12.3	-14.5	---	-22.3	35		

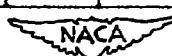
^aCloud entry.^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)	Maximum true gust velocity $U_{t_{max}}$ (fps)	Gust gradient distance (ft)		No. of gusts		
May 27, 1947 - Flight 2								
Airplane 351 - Traverse 1 Length of traverse 1360.8 sec, 475,733 ft								
1020 - 1030	21,000	7.2	---	---	---	3		
1030 - 1040		7.9	-11.6	14.8	---	7		
1040 - 1050		---	-5.7	---	---	1		
1050 - 1060		12.6	-7.2	---	-17.5	6		
1060 - 1070		11.0	-6.6	16.6	250	2		
1070 - 1080		5.7	-5.0	10.3	28	2		
1080 - 1090		9.8	-2.8	17.4	39	3		
1090 - 1100		14.5	-7.9	27.9	-7.0	7		
1100 - 1110		13.5	---	19.4	177	2		
1110 - 1120		13.5	-20.5	36.0	247	9		
1120 - 1130		9.8	-15.7	---	293	3		
1130 - 1140		14.8	-5.4	6.4	26	4		
1140 - 1150		9.8	---	20.5	47	2		
1150 - 1160		---	---	---	---	0		
1160 - 1170		---	-3.8	---	---	1		
1170 - 1180		---	-6.6	---	-5.9	1		
1180 - 1290		---	---	---	106	0		
1290 - 1300		---	-6.3	---	-21.5	1		
^b 1300 - 1310		---	---	---	439	0		
1310 - 1370	20,000	---	---	---	---	0		
Airplane 348 - Traverse 1 Length of traverse 250.4 sec, 79,227 ft								
^a 0 - 20	16,000	---	---	---	---	0		
20 - 30		4.4	-8.5	---	---	4		
30 - 40		10.8	-6.3	---	283	8		
40 - 50		5.7	-15.5	---	---	6		
50 - 60		6.6	---	---	---	3		
60 - 70		7.6	---	4.9	184	2		
70 - 80		4.4	-2.2	3.1	62	2		
80 - 100		---	---	---	---	0		
100 - 110		13.3	-10.4	---	184	7		
110 - 120		8.5	-12.3	---	---	8		
120 - 130	15,000	14.6	-19.6	---	---	9		

^aCloud entry.^bCloud exit.

NACA

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity U_e _{max} (fps)	Maximum true gust velocity U_t _{max} (fps)	Gust gradient distance (ft)		No. of gusts		
May 27, 1947 - Flight 2								
Airplane 348 - Traverse 1 Length of traverse 250.4 sec, 79,227 ft								
130 - 140	14,500	12.3	-19.9	15.9	-----	16		
140 - 150	15,000	10.1	-5.4	-----	-----	6		
150 - 160	15,500	5.4	-8.9	-----	-----	11		
160 - 170		7.9	-2.2	-----	-----	7		
170 - 180		8.2	-----	-----	-----	2		
180 - 190	16,000	-----	-----	-----	-----	0		
190 - 200		3.5	-7.0	-----	-10.0	77		
200 - 210		7.6	-6.6	-----	-10.3	67		
210 - 220	15,500	8.2	-4.1	-----	-5.4	57		
220 - 230		5.4	-5.1	-----	-----	8		
230 - 240		3.2	-5.7	-----	-----	8		
^b 240 - 250		5.7	-6.0	-----	-----	11		
250 - 260		-----	-----	-----	-----	0		
Airplane 348 - Traverse 2 Length of traverse 606.9 sec, 196,153 ft								
0 - 50	15,500	-----	-----	-----	-----	0		
50 - 60		4.1	-2.2	-----	-----	2		
60 - 70		6.9	-----	7.7	201	2		
70 - 80		3.1	-----	-----	-----	1		
80 - 90		2.8	-----	4.9	197	1		
90 - 100		4.1	-2.2	4.9	57	3		
100 - 110		-----	-----	-----	-----	0		
110 - 120		4.4	-2.8	-----	-5.0	95		
120 - 130		3.1	-----	-----	-----	1		
130 - 140		-----	-----	-----	-----	0		
140 - 150		3.1	-2.8	-----	-----	3		
150 - 160		-----	-2.8	-----	-----	2		
160 - 170		2.5	-5.0	-----	-12.8	46		
170 - 180		-----	-----	-----	-----	0		
180 - 190		7.8	-5.0	-----	-----	5		
190 - 200		-----	-----	-----	-----	0		
200 - 210		-----	-----	-----	-----	0		
210 - 220		3.1	-4.7	-----	-----	4		
220 - 230		-----	-5.0	-----	-----	5		

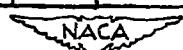
^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity U_e _{max} (fps)	Maximum true gust velocity U_t _{max} (fps)	Gust gradient distance (ft)	No. of gusts
May 27, 1947 - Flight 2					
Airplane 348 - Traverse 2 Length of traverse 606.9 sec, 196,153 ft					
230 - 240	15,500	----	-2.8	1.6	----
240 - 250	----	----	-4.4	----	----
250 - 260	16,000	4.1	-6.6	----	62
^a 260 - 270	----	3.8	-11.3	6.1	-18.2
270 - 280	15,500	3.1	-4.1	----	----
280 - 290	5.6	----	----	----	2
290 - 300	4.4	-3.1	6.6	-6.7	104
300 - 310	1.9	-3.8	----	----	2
310 - 320	3.4	-5.0	----	-13.0	54
320 - 330	6.6	-5.0	----	----	4
330 - 340	2.8	----	----	----	2
340 - 350	4.1	-4.4	----	----	4
350 - 360	----	-11.0	----	-19.3	129
360 - 370	15,500	5.6	-5.0	-13.5	272
370 - 380	----	----	-4.4	----	1
380 - 390	3.4	-1.6	----	----	3
390 - 400	5.0	-5.0	----	----	7
400 - 410	10.0	-7.8	5.4	----	6
410 - 420	16,000	9.7	-9.1	9.4	38
420 - 430	16.6	-19.4	14.2	----	8
430 - 440	----	-13.2	----	-29.3	265
440 - 450	16,500	----	-8.5	----	4
450 - 460	16,000	27.6	-12.2	----	10
460 - 470	----	----	-13.5	----	9
470 - 480	16,500	10.7	-21.0	-27.8	447
480 - 490	16.0	-11.3	31.0	----	7
490 - 500	11.3	-8.5	----	----	4
500 - 510	----	-2.5	----	-8.1	2
510 - 520	2.8	-2.8	----	----	3
520 - 530	3.8	----	4.9	----	1
530 - 540	3.8	-3.8	----	----	2
540 - 550	2.8	-1.9	----	----	2
550 - 560	3.1	-4.4	----	----	3
^b 560 - 590	----	----	----	----	0
590 - 600	----	----	----	----	0
600 - 610	----	----	----	----	0

^aCloud entry.^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity U_e _{max} (fps)	Maximum true gust velocity U_t _{max} (fps)	Gust gradient distance (ft)	No. of gusts
May 27, 1947 - Flight 2					
Airplane 360 - Traverse 1 Length of traverse 809.0 sec, 210,080 ft					
0 - 130	11,000	-----	-----	-----	0
130 - 140		-----	-5.4	-----	1
140 - 150		-----	-3.4	-----	1
150 - 190		-----	-----	-----	0
a190 - 200		7.2	-9.1	-----	2
200 - 210		17.4	-19.2	-----	4
210 - 220		-----	-----	-----	0
220 - 230		-----	-----	176	1
230 - 240		6.6	-7.6	-----	5
240 - 250		11.4	-7.6	-14.0	2
250 - 260		9.5	-8.8	-----	10
260 - 270		5.7	-3.2	-----	2
270 - 280		11.0	-12.3	-----	7
280 - 290		4.7	-6.0	8.3	5
290 - 310		-----	-----	26	0
310 - 320		-----	-6.3	-----	3
320 - 330		10.7	-8.8	-----	5
330 - 340		5.4	-10.1	-----	4
340 - 350		5.0	-5.7	7.7	8
350 - 360		7.9	-2.5	-8.0	3
360 - 370		-----	-4.4	-3.7	4
370 - 380		-----	-----	-----	3
380 - 390		-----	-----	-----	0
390 - 400		8.2	-6.0	16.9	5
b400 - 410		4.1	-5.7	-----	7
a410 - 420		8.5	-5.4	-----	8
420 - 430		-----	-6.6	3.6	5
430 - 440	10,500	18.9	-10.4	-----	4
440 - 450		8.2	-9.1	-----	9
450 - 460		10.1	-13.9	-----	9
460 - 470	10,000	9.8	-18.0	4.9	10
470 - 480		19.9	-11.7	-----	6
480 - 490	9,500	10.1	-4.4	-----	5
490 - 500		6.3	-----	6.6	1
500 - 540		-----	-----	143	0
540 - 550		11.0	-9.1	-----	4

aCloud entry.

bCloud exit.



TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)	Maximum true gust velocity $U_{t_{max}}$ (fps)	Gust gradient distance (ft)		No. of gusts		
May 27, 1947 - Flight 2								
Airplane 360 - Traverse 1								
	Length of traverse 809.0 sec, 210,030 ft							
550 - 560	9,500	11.0	-13.2	14.8	---	5		
560 - 570	10,000	8.2	-2.5	---	---	3		
570 - 580		5.4	-9.1	---	---	4		
580 - 590	10,500	14.5	-10.4	---	-12.7	9		
590 - 600		6.0	-15.8	---	-8.5	5		
600 - 610		14.8	-12.6	---	---	3		
610 - 620		2.8	-11.7	---	---	7		
620 - 630	10,000	4.4	-9.1	---	-17.9	8		
630 - 640		6.6	-4.4	---	---	4		
640 - 650		2.5	-6.6	---	-20.6	6		
650 - 660		4.7	-6.6	---	-14.2	2		
660 - 670		6.3	-3.8	---	-10.7	2		
670 - 680		---	---	---	---	0		
680 - 690		6.9	-5.7	---	---	2		
690 - 700		4.1	-7.9	---	-8.3	5		
700 - 710		4.1	-6.6	---	---	3		
710 - 720		---	-4.4	---	-10.6	2		
720 - 730		4.1	-8.2	8.8	168	3		
730 - 740		13.6	-2.8	11.3	-6.7	6		
740 - 750		9.5	-16.1	---	---	5		
750 - 760		9.1	-6.3	---	---	7		
760 - 770		6.9	-2.8	---	-8.6	3		
770 - 780		14.8	-9.8	---	---	6		
780 - 790	10,500	---	---	---	---	0		
790 - 800		4.4	-3.5	---	---	4		
b800 - 810		4.4	-3.2	---	---	2		
Airplane 360 - Traverse 2								
Length of traverse 306.4 sec, 85,832 ft								
^a 0 - 10	10,500	7.8	-14.1	---	---	9		
10 - 20		8.5	-7.2	14.6	270	7		
20 - 30		11.9	-11.0	---	---	7		
30 - 40		14.8	-13.5	---	---	8		
40 - 50	11,000	4.1	-3.4	9.5	62	3		
50 - 60		6.6	-6.0	---	-12.8	259		

^aCloud entry.^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity U_e _{max} (fps)	Maximum true gust velocity U_t _{max} (fps)	Gust gradient distance (ft)		No. of gusts		
May 27, 1947 - Flight 2								
Airplane 360 - Traverse 2 Length of traverse 306.4 sec, 85,832 ft								
60 - 70	11,000	8.2	-6.0	-----	-----	2		
70 - 80		7.5	-5.6	-----	-----	2		
80 - 90		4.4	-7.8	12.8	-8.8	49 202		
90 - 130		-----	-----	-----	-----	0		
130 - 140		2.5	-6.9	19.0	-----	65		
140 - 150		5.6	-11.3	-----	-22.6	127		
150 - 160		4.7	-3.8	-----	-----	3		
160 - 170		6.0	-6.0	-----	-10.0	102		
170 - 180		5.3	-8.8	8.7	-17.7	75 111		
180 - 190		7.8	-6.9	11.4	-6.7	57 68		
190 - 200	10,000	7.5	-2.5	7.2	-----	150		
200 - 210		10.0	-2.5	-----	-----	2		
210 - 220		19.5	-27.6	40.5	-----	128		
220 - 230		7.8	-3.8	-----	-12.8	123		
230 - 240		5.0	-9.1	6.8	-24.6	60 274		
240 - 250	9,500	15.7	-11.3	-----	-----	6		
250 - 260		19.8	-8.5	28.2	-----	67		
260 - 270		-----	-14.1	-----	-----	1		
270 - 280		11.3	-21.0	-----	-----	8		
280 - 290		-----	-2.8	-----	-5.7	124		
290 - 300		5.0	-2.5	4.7	-7.4	41 247		
b300 - 310		-----	-----	-----	-----	0		
Airplane 353 - Traverse 1 Length of traverse 805.3 sec, 203,024 ft								
0 - 50	5,500	-----	-----	-----	-----	0		
50 - 60		-----	-5.7	-----	-----	2		
60 - 70		-----	-9.5	-----	-----	1		
70 - 80		2.2	-6.3	5.3	-----	2		
80 - 110		-----	-----	-----	-----	0		
110 - 120		4.4	-5.7	7.9	-----	3		
120 - 140		-----	-----	-----	-----	0		
140 - 150		8.5	-----	8.4	-----	2		
150 - 160		-----	-----	-----	-----	0		
160 - 170	6,000	10.1	-4.7	-----	-6.8	69		

bCloud exit.

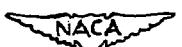


TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)	Maximum true gust velocity $U_{t_{max}}$ (fps)	Gust gradient distance (ft)	No. of gusts
May 27, 1947 - Flight 2					
Airplane 353 - Traverse 1 Length of traverse 805.3 sec, 203,024 ft					
170 - 180	6,000	----	-3.5	----	1
180 - 190	5,500	2.8	----	4.6	----
190 - 200		5.1	-6.0	8.0	----
200 - 210		4.1	-4.4	6.6	----
210 - 220		----	-8.9	----	-9.9
220 - 230		7.0	-5.1	----	----
230 - 240		7.6	-4.7	----	----
240 - 250		8.2	-9.2	----	----
250 - 260	6,000	4.4	----	6.8	23
260 - 270		----	-9.5	----	----
270 - 280		9.2	-5.4	6.7	272
280 - 290	5,500	14.9	-8.5	14.5	36
290 - 300	6,000	4.1	-8.9	15.0	75
300 - 310		7.3	-11.1	----	-24.8
310 - 320	5,500	21.2	-17.7	36.0	182
320 - 330		15.8	-12.7	14.9	97
330 - 340		11.4	-11.1	----	----
340 - 350		12.0	-15.2	----	----
350 - 360		5.4	-8.2	----	----
360 - 380		----	----	----	0
380 - 390	6,000	----	-13.0	-18.7	116
390 - 400		5.1	-13.9	15.1	321
400 - 410		----	-12.3	----	----
410 - 430	5,500	----	----	----	0
430 - 440		4.1	----	8.0	99
440 - 450		----	----	----	0
450 - 460		----	-4.4	----	2
460 - 470		----	-3.5	----	0
470 - 480		4.7	-5.7	6.9	57
480 - 490		----	-3.5	-8.8	40
490 - 500		----	-4.7	----	128
500 - 510		10.1	-8.9	----	1
510 - 520		7.3	-11.1	----	1
520 - 530		----	-7.6	-17.6	6
530 - 540		6.3	-7.0	8.4	6
540 - 550		4.1	-6.3	----	2
550 - 560		7.3	-7.3	----	4
					5

^aCloud entry.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)		No. of gusts		
May 27, 1947 - Flight 2								
Airplane 353 - Traverse 1 Length of traverse 805.3 sec, 203,024 ft								
560 - 570	5,500	12.7	-5.4	9.4	---	7		
570 - 580	---	---	-10.4	---	---	1		
580 - 590	---	7.6	---	10.7	---	2		
590 - 600	---	3.8	-16.5	5.3	---	4		
600 - 610	---	4.7	---	---	---	1		
610 - 660	---	---	---	---	---	0		
660 - 670	---	---	-4.4	---	---	1		
670 - 680	---	---	---	---	---	0		
680 - 690	---	---	-3.8	---	---	1		
690 - 730	---	---	---	---	---	0		
730 - 740	---	2.5	-10.1	5.9	37	4		
^b 740 - 750	---	3.5	---	---	---	1		
750 - 760	---	---	-3.2	---	---	1		
760 - 770	---	3.2	-3.2	4.9	150	2		
770 - 780	---	---	-3.8	---	---	1		
780 - 810	---	---	---	---	---	0		
Airplane 353 - Traverse 2 Length of traverse 517.3 sec, 137,229 ft								
0 - 40	5,500	---	---	---	---	0		
40 - 50	---	---	-5.0	-5.2	64	1		
50 - 60	---	4.4	---	8.5	57	1		
^a 60 - 70	---	2.8	-5.7	---	---	3		
70 - 80	---	4.4	-5.0	---	---	5		
80 - 90	---	4.1	---	6.6	248	1		
90 - 100	6,000	4.4	-6.9	---	---	6		
100 - 110	6,500	---	-15.4	---	---	1		
110 - 120	---	3.1	---	---	---	1		
120 - 130	6,000	10.7	---	---	---	3		
130 - 140	---	9.1	-6.6	---	---	3		
140 - 150	6,500	3.1	-15.7	---	---	5		
150 - 160	6,000	12.2	-6.0	17.3	-7.8	106		
160 - 170	---	10.4	-6.6	---	-15.7	134		
170 - 180	---	---	-9.7	12.7	239	7		
180 - 190	---	4.1	-6.3	---	47	2		
						9		

^aCloud entry.^bCloud exit.

TABLE I-- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity U_e _{max} (fps)	Maximum true gust velocity U_t _{max} (fps)	Gust gradient distance (ft)		No. of gusts		
May 27, 1947 - Flight 2								
Airplane 353 - Traverse 2 Length of traverse 517.3 sec, 137,229 ft								
190 - 200	6,000	6.6	-10.4	---	-22.7	237	7	
200 - 210		10.7	-6.3	---	---	---	9	
210 - 220		4.1	-5.7	---	---	---	5	
220 - 230		13.8	-9.4	---	---	---	8	
230 - 240		5.7	-10.1	16.1	---	125	6	
240 - 250		11.9	-13.2	---	---	---	6	
250 - 260		4.1	-10.4	---	---	---	4	
260 - 270		11.9	-4.1	19.6	---	71	6	
270 - 280		8.8	-10.4	---	---	---	7	
280 - 290		4.1	-6.3	---	---	---	3	
290 - 300		4.1	-3.8	7.8	---	65	7	
^b 300 - 310		---	-2.8	---	---	---	1	
310 - 320		---	---	---	---	---	0	
320 - 330		---	-2.8	---	---	---	1	
330 - 340		---	---	---	---	---	0	
340 - 350		---	-2.8	---	---	---	1	
350 - 360		4.1	---	---	---	---	1	
360 - 520		---	---	---	---	---	0	
May 29, 1947 - Flight 3								
Airplane 327 - Traverse 1 Length of traverse 996.4 sec, (e) ft								
	e							
Airplane 348 - Traverse 1 Length of traverse 638.7 sec, 186,604 ft								
0 - 120	21,000	---	---	---	---	---	0	
120 - 130		4.0	---	9.1	---	303	1	
130 - 180		---	---	---	---	---	0	
180 - 190		3.4	---	6.7	---	362	1	
^a 190 - 410		---	---	---	---	---	0	
410 - 420		4.3	---	6.9	---	227	1	

^aCloud entry.^bCloud exit.^eFailure in operation of airspeed-altitude recorder prevented computations for gust velocities and length of traverse in feet.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)	No. of gusts
May 29, 1947 - Flight 3					
Airplane 348 - Traverse 1 Length of traverse 638.7 sec, 186,604 ft					
420 - 530	21,500	----	----	----	0
530 - 540	21,000	4.0	7.5	190	1
^a 540 - 640	----	----	----	----	0
Airplane 356 - Traverse 1 Length of traverse 982.1 sec, 308,518 ft					
0 - 10	16,000	4.1	----	----	2
10 - 20		4.1	-6.0	----	4
20 - 30		----	-3.8	-6.9	1
30 - 40		----	-2.8	-11.4	1
40 - 50		----	----	----	0
50 - 60		2.5	-6.9	-12.2	3
^a 60 - 70		4.7	----	110	3
70 - 80		----	----	27	3
80 - 90		2.5	-3.5	-8.9	1
90 - 100		3.5	-7.2	53	3
100 - 110		6.9	----	----	1
110 - 120		10.1	-3.8	-14.0	5
120 - 130		7.2	-5.0	174	6
130 - 140		6.3	----	139	4
140 - 150		5.7	-3.8	74	3
150 - 160		6.9	-3.8	237	3
160 - 170		5.4	----	174	3
170 - 180		----	----	142	1
180 - 190	16,500	5.0	-3.8	----	0
190 - 200		----	----	----	3
200 - 210	16,000	3.5	-3.8	----	0
210 - 220		----	-2.8	----	2
220 - 230		----	----	----	1
230 - 240		3.8	-4.1	----	0
240 - 280		----	----	288	4
280 - 290		2.5	----	----	0
290 - 300		----	-5.4	-9.5	1
300 - 380		----	----	230	1
		----	----	----	0

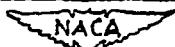
^aCloud entry.^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)	No. of gusts
May 29, 1947 - Flight 3					
Airplane 356 - Traverse 1 Length of traverse 982.1 sec, 308,518 ft					
380 - 390	16,000	----	-4.1	----	222
390 - 410		----	----	----	0
410 - 420		2.5	----	----	1
420 - 460		----	----	----	0
460 - 470		----	-5.3	-9.7	395
470 - 630		----	----	----	1
630 - 640		----	-2.8	-11.5	384
640 - 650		4.4	-3.4	9.3	183
650 - 660		3.8	----	----	3
660 - 810		----	----	----	1
810 - 820		----	-8.8	-15.4	165
820 - 830		4.4	-4.1	6.7	196
830 - 840		2.5	----	----	2
840 - 850		----	-2.5	-5.8	74
850 - 930		----	----	----	1
930 - 940		5.0	----	----	0
940 - 950		----	----	----	1
950 - 960		----	-3.4	----	0
960 - 970		3.4	-6.3	6.1	237
970 - 980	15,500	8.2	-4.4	----	3
980 - 990		----	----	----	2
Airplane 353 - Traverse 1 Length of traverse 903.2 sec, 263,734 ft					
0 - 70	11,000	----	----	----	0
70 - 80		2.2	-2.5	-4.6	56
80 - 120		----	----	----	2
120 - 130		----	-2.8	-3.6	0
130 - 180		----	----	188	1
180 - 190		6.6	-7.3	----	0
190 - 200		----	----	-13.8	5
200 - 210		2.8	-3.8	----	1
210 - 220		----	----	----	5
220 - 230		5.0	-5.0	----	0
230 - 240		5.4	-4.1	13.2	2
				79	3

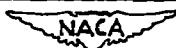


TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)	No. of gusts
May 29, 1947 - Flight 3					
Airplane 353 - Traverse 1 Length of traverse 903.2 sec, 263,734 ft					
240 - 250	11,000	7.9	-2.2	---	85
250 - 260		---	---	---	0
260 - 270		---	---	344	1
270 - 280		4.1	-4.7	252	3
280 - 290		---	-6.3	---	1
290 - 300		---	---	---	0
300 - 310		---	5.9	250	1
^a 310 - 320		4.1	---	---	1
320 - 330		---	---	---	0
330 - 340		5.0	-3.8	148	3
340 - 350		3.5	-8.5	88	4
350 - 360	10,500	7.6	-11.0	289	4
360 - 370		7.9	-11.7	207	7
370 - 380		9.5	-5.7	82	9
380 - 390		3.8	-5.0	114	7
390 - 400		8.8	-11.7	91	6
400 - 410		---	5.2	126	1
410 - 420		2.8	-3.8	---	7
420 - 430		---	-6.7	---	2
430 - 450		---	---	---	0
450 - 460		2.8	-3.8	257	3
460 - 470		---	3.8	---	1
470 - 480		---	-3.8	---	1
480 - 490		---	---	---	0
490 - 500		6.0	---	270	1
500 - 510		---	11.3	---	0
510 - 520	11,000	7.5	-6.0	101	240
520 - 530		5.0	-10.1	270	4
530 - 540		3.5	-8.2	165	3
540 - 550		4.1	-3.8	69	2
^b 550 - 560		4.1	---	---	2
560 - 570		4.7	-3.8	70	5
570 - 580		---	---	---	0
580 - 590		5.0	---	76	2
590 - 600		3.5	-4.1	92	2
600 - 610		---	-3.8	---	3
610 - 620		5.3	-4.7	63	3

^aCloud entry.^bCloud exit.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)		No. of gusts		
May 29, 1947 - Flight 3								
Airplane 353 - Traverse 1 Length of traverse 903.2 sec, 263,734 ft								
620 - 630	11,000	12.0	-5.0	32.4	---	45		
630 - 640		---	-4.7	7.5	-7.0	93 246		
640 - 650		4.4	-3.8	5.7	---	226		
650 - 660		---	-6.9	---	-10.4	---		
660 - 670		4.7	-6.3	10.9	---	284		
670 - 680		3.8	-5.7	---	---	---		
680 - 690		3.8	-4.1	---	-8.4	---		
690 - 700		3.1	-7.5	---	---	241		
700 - 720		---	---	---	---	---		
720 - 730		---	---	---	-6.3	107		
730 - 750		---	---	---	---	1		
750 - 760		---	-4.4	---	-4.3	38		
760 - 770		5.3	---	13.6	---	1		
770 - 780		3.8	-4.1	---	---	7		
780 - 790		1.9	-2.2	---	---	2		
790 - 800		4.4	---	---	---	1		
800 - 810		2.5	---	---	---	1		
810 - 820		---	-3.6	6.8	-6.0	348 118		
820 - 830		2.5	-4.1	---	---	2		
830 - 840		4.7	-4.1	---	---	3		
840 - 850		3.1	-6.0	---	---	5		
850 - 860		6.0	-4.1	---	---	5		
860 - 870		3.1	-2.2	---	---	3		
870 - 880		5.0	---	5.1	---	1		
880 - 910		---	---	---	---	0		
Airplane 351 - Traverse 1 Length of traverse 998.9 sec, 259,703 ft								
^d 0 - 290	6,000	---	---	---	---	0		
290 - 300		2.8	---	4.6	---	1		
300 - 310		---	---	---	---	0		
310 - 320		---	-3.1	---	-7.1	327		
320 - 400		---	---	---	---	1		
400 - 410		---	---	3.6	---	0		
410 - 420		2.8	---	4.8	---	1		
420 - 530		---	---	---	---	0		
530 - 540		---	-4.7	---	---	1		

^dCloud entry and exit not indicated on records.



TABLE I.- SUMMARY OF GUST MEASUREMENTS - Concluded

Time interval (sec)	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)	No. of gusts
May 29, 1947 - Flight 3					
Airplane 351 - Traverse 1					
Length of traverse 998.9 sec, 259,703 ft					
540 - 570	6,000	---	---	---	0
570 - 580	---	-4.1	---	---	1
580 - 590	2.8	---	---	---	2
590 - 600	2.8	-4.7	---	---	4
600 - 610	2.2	-5.6	---	---	3
610 - 620	2.8	-3.8	7.0	37	3
620 - 630	2.8	---	---	---	1
630 - 640	2.8	---	3.4	134	1
640 - 650	2.8	-4.4	---	---	3
650 - 660	---	-5.3	---	---	1
660 - 670	3.5	-4.7	---	---	5
670 - 680	2.8	-4.7	---	-8.7	38
680 - 690	2.8	-3.1	---	---	2
690 - 700	3.8	-3.8	5.9	-5.9	152
700 - 710	2.2	-3.8	5.0	81	3
710 - 720	2.8	-7.8	---	---	5
720 - 730	5.3	---	---	---	2
730 - 740	---	---	---	---	0
740 - 750	6.9	---	---	---	3
750 - 760	7.8	-1.9	---	-9.1	2
760 - 780	---	---	---	---	0
780 - 790	6.0	-3.8	---	---	3
790 - 800	3.1	---	---	---	1
800 - 810	2.2	-5.3	---	-9.7	3
810 - 820	---	---	---	---	0
820 - 830	5,500	2.8	6.5	56	1
830 - 840	6,000	2.2	-4.1	---	2
840 - 860	---	---	---	---	0
860 - 870	3.1	---	---	---	1
870 - 880	---	---	---	---	0
880 - 890	5.3	---	---	---	1
890 - 910	---	---	---	---	0
910 - 920	5.3	---	---	---	1
920 - 950	---	---	---	---	0
950 - 960	---	-4.7	---	-8.4	2
960 - 970	---	-4.1	---	---	1
970 - 980	5.3	---	6.9	174	1
980 - 1000	---	---	---	---	0

TABLE II.- SUMMARY OF DRAFT VELOCITY MEASUREMENTS FROM FLIGHTS
OF P-61C AIRPLANES WITHIN THUNDERSTORMS

Date	Flight no.	Air-plane no.	Assigned altitude (ft)	Tra-verse no.	Draft location from start of traverse (sec)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
5-13-47	1	348	26,000	1	59.9	78.0	6,232	-31.8
				2	26.3	41.9	5,385	-20.5
					48.0	57.8	3,409	28.6
				a ₃	92.4	110.0	5,969	11.4
		354	21,000		113.3	123.0	3,319	-20.6
					863.4	885.6	6,291	21.6
	2	360	16,000	1	251.0	263.2	3,402	-10.4
					288.0	294.0	1,749	33.3
					335.0	346.0	3,267	18.2
				2	36.0	53.0	4,956	30.3
		353	11,000		118.0	139.0	6,407	17.4
5-27-47	2	351	21,000	1	204.8	223.3	5,281	13.5
					249.6	261.3	3,358	13.8
					304.3	315.8	3,222	38.5
					339.0	352.8	3,994	-27.2
	3	348	16,000	1	359.2	364.8	1,561	35.7
					20.0	36.7	4,618	12.0
					281.0	304.0	8,804	39.1
					320.0	332.0	4,736	-37.5
	4	348	16,000	1	334.0	364.0	11,569	35.3
					398.0	420.0	7,433	-20.5
					48.8	69.0	6,699	-34.5
					91.2	101.2	3,094	-17.6
	5			2	409.8	442.4	9,932	26.7
					464.4	481.8	5,492	32.9

^aNo draft velocities indicated by records.

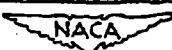


TABLE II.- SUMMARY OF DRAFT VELOCITY MEASUREMENTS - Concluded

Date	Flight no.	Air-plane no.	Assigned altitude (ft)	Traverse no.	Draft location from start of traverse (sec)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
5-27-47	2	360	11,000	1	204.0	213.0	2,210	-48.9
					264.0	273.0	2,338	-31.1
					305.0	343.0	9,509	-10.5
					352.0	364.0	3,175	12.5
					417.0	436.4	3,547	31.7
					465.0	490.0	6,479	-27.2
					491.0	505.0	3,646	21.4
					557.0	596.4	10,088	31.2
					596.8	635.0	9,363	-22.6
					747.0	757.4	2,809	-28.8
5-29-47	3	353	6,000	b ₁	80.0	100.0	5,166	-10.8
					162.0	179.0	4,596	-14.7
					205.0	215.0	2,644	30.0
					219.7	247.7	7,260	-28.0
5-29-47	3	327	26,000	b ₁				
5-29-47	3	348	21,000	a ₁				
5-29-47	3	356	16,000	1	105.0	125.3	6,029	9.2
5-29-47	3	353	11,000	1	170.0	184.0	4,062	11.4
					222.5	245.4	6,617	-7.0
					347.0	378.0	9,364	-21.8
					378.0	395.0	5,324	17.6
					456.0	475.0	5,700	-11.9
					536.0	553.4	5,012	-9.2
5-29-47	3	351	6,000	a ₁				

^aNo draft velocities indicated by records.^bFailure in operation of airspeed-altitude recorder prevented computations for draft velocities.

INDEX

<u>Subject</u>	<u>Number</u>
Gusts - Structure	6.1.2.1
Gusts - Turbulence	6.1.2.3
Gusts - Frequency	6.1.2.2

ABSTRACT

The gust and draft velocities evaluated from records of NACA instruments installed in P-61C airplanes participating in thunderstorm flights at Clinton County Army Air Field, Ohio, from May 13 to May 29, 1947 are presented.